IN THE CLAIMS:

1. (currently amended) A method for retrospective internal gating, said method comprising:

scanning a patient to obtain projection data;

generating images from the projection data;

obtaining a signal representing information regarding a physiological cycle of an object within the patient;

calculating a ~~first~~ phase ~~of one~~ of each of the generated images based on a plurality of points of a respiratory cycle of a motion of the object;

specifying at least one target phase ~~based on which the images can be sorted~~; and

sorting the generated images based on the at least one target phase within the respiratory cycle of the motion of the object to generate at least one series of images.

2. (original) A method in accordance with Claim 1 further comprising receiving, from a user, a selection of a series of images from the at least one series of images, the selected series of images displaying a least amount of tissue motion compared to tissue motion of any other series in the at least one series of images.

3. (currently amended) A method in accordance with Claim 1 wherein sorting the generated images based on the at least one target phase comprises:

grouping images having the same spatial location to generate at least one group, wherein each group includes images with a z-location different than a z-location of images within any other group; and

selecting one image in each group.

4. (original) A method in accordance with Claim 3 wherein selecting one image in each group comprises selecting one image in each group, the image having a phase that lies within a target phase and a phase tolerance.

5. (currently amended) A method in accordance with Claim 3 wherein selecting one image in each group comprises selecting one image in each group, the image having a phase that lies within a target phase and a phase tolerance, and is near [[to]] a middle of an acquisition period of a scan of the patient.

6. (original) A method in accordance with Claim 1 further comprising:

validating the motion of the object by checking at least one of:

whether each cycle of the motion of the object is within a percentage of an average cycle of the motion of the object; and

whether an amplitude of each cycle of the motion of the object is within a percentage of an average amplitude of the motion of the object.

7. (original) A method in accordance with Claim 1 further comprising calculating phases of the images.

8. (original) A method in accordance with Claim 7 wherein calculating phases of the images comprises:

determining a start scan time, a mid scan time, and an end scan time for each of the images;

determining a mid scan sample point for each of the images;

determining, for each of the images, additional sample points symmetrically located around the mid scan sample point; and

computing a phase of each of the images by performing one of:

averaging phases of the mid scan sample point and of at least one of the additional sample points; and

averaging phases of at least one of the additional sample points.

9-10. (canceled)

11. (currently amended) A system for imaging a moving object within a patient, the system comprising:

a scanner configured to acquire projection data of the patient;

an image reconstructor configured to generate images corresponding to the projection data; and

a controller configured to:

receive a signal representing information regarding a motion of the object;

calculate a ~~first~~ phase ~~of one~~ of each of the generated images based on a plurality of points of a respiratory cycle of the motion of the object;

enable a user to specify at least one target phase; and

sort the generated images based on the at least one target phase within the respiratory cycle of the motion of the object to generate at least one series of images.

12. (original) A system in accordance with Claim 11 wherein the controller is further configured to receive, from a user, selection of a series of images from the at least one series of images, the selected series of images displaying a least amount of tissue motion compared to tissue motion of any other series in the at least one series of images.

13. (original) A system in accordance with Claim 11 wherein to sort the images based on the target phase the controller configured to:

group images having the same spatial location to generate at least one group, wherein each group includes images with a z-location different than a z-location of images within any other group; and

select one image in each group.

14. (original) A system in accordance with Claim 13 wherein to select one image in each group said controller configured to select one image in each group, the image having a phase that lies within a target phase and a phase tolerance.

15. (currently amended) A system in accordance with Claim 13 wherein to select one image in each group said controller configured to select one image in each group, the image having a phase that lies within a target phase and a phase tolerance, and is near [[to]] a middle of an acquisition period of a scan of the patient.

16. (original) A system in accordance with Claim 11 wherein the controller is further configured to:

validate the motion of the object by checking at least one of:

whether each cycle of the motion of the object is within a percentage of an average cycle of the motion of the object; and

whether an amplitude of each cycle of the motion of the object is within a percentage of an average amplitude of the motion of the object.

17. (original) A system in accordance with Claim 11 wherein the controller is further configured to calculate phases of the images.

18. (original) A system in accordance with Claim 17 wherein to calculate phases of the images the controller configured to:

determine a start scan time, a mid scan time, and an end scan time for each of the images;

determine a mid scan sample point for each of the images;

determine, for each of the images, additional sample points symmetrically located around the mid scan sample point; and

compute a phase of each of the images by performing one of:

averaging phases of the mid scan sample point and of at least one of the additional sample points; and averaging phases of at least one of the additional sample points.

19-20. (canceled)

21. (currently amended) A system for imaging a moving object within a patient, the system comprising:

a computed tomography (CT) scanner configured to acquire projection data of the patient;

an image reconstructor coupled to the CT scanner and configured to generate images corresponding to the projection data; and

a controller coupled to the image reconstructor and configured to:

receive a signal representing information regarding a motion of the object;

calculate a ~~first~~ phase ~~of one~~ of each of the generated images based on a plurality of points of a respiratory cycle of the motion of the object;

enable a user to specify at least one target phase; and

sort the generated images based on the at least one target phase within the respiratory cycle of the motion of the object to generate at least one series of images.

22. (currently amended) A computer configured to:

instruct a scanner to acquire projection data of the patient;

instruct an image reconstructor to generate images corresponding to the projection data;

receive a signal representing information regarding a motion of the object;

calculate a ~~first~~ phase ~~of one~~ of each of the generated images based on a plurality of points of a respiratory cycle of the motion of the object;

enable a user to specify at least one target phase; and sort the generated images based on the at least one target phase within the respiratory cycle of the motion of the object to generate at least one series of images.

23. (original) A computer in accordance with Claim 22 wherein the computer is further configured to receive, from a user, a selection of a series of images from the at least one series of images, the selected series of images displaying a least amount of tissue motion compared to tissue motion of any other series in the at least one series of images.

24. (currently amended) A computer-readable medium encoded with a program configured to:

instruct a scanner to acquire projection data of the patient;

instruct an image reconstructor to generate images corresponding to the projection data;

receive a signal representing information regarding a motion of the object;

calculate a ~~first~~ phase ~~of one~~ of each of the generated images based on a plurality of points of a respiratory cycle of the motion of the object;

enable a user to specify at least one target phase; and

sort the generated images based on the at least one target phase within the respiratory cycle of the motion of the object to generate at least one series of images.

25. (original) A computer-readable medium in accordance with Claim 24 wherein the program is further configured to receive, from a user, a selection of a series of images from the at least one series of images, the selected series of images displaying a least amount of tissue motion compared to tissue motion of any other series in the at least one series of images.

26. (currently amended) A method in accordance with Claim 1[[,]] wherein said calculating ~~the first phase~~ a phase of each of the generated images further comprises averaging a plurality of phases of the plurality of points of the respiratory cycle.

27. (currently amended) A method in accordance with Claim 1[[,]] wherein said calculating ~~the first phase~~ a phase of each of the generated images further comprises computing ~~the first phase~~ a phase of ~~the one~~ each of the generated images based on a plurality of phases of the plurality of points of the respiratory cycle.